

**METHOD AND SYSTEM FOR CONTROL OF PROCESSING CONDITIONS  
IN PLASMA PROCESSING SYSTEMS**

**ABSTRACT OF THE DISCLOSURE**

Methods and systems are provided for processing a film over a substrate in a process chamber using plasma deposition. A plasma is formed in the process chamber and a process gas mixture suitable for processing the film is flowed into the process chamber under a set of process conditions. The process gas mixture may include a silicon-containing gas and an oxygen-containing gas to deposit a silicate glass, which may in some instances also be doped to obtain specifically desired optical properties. A parameter is monitored during processing of the film so that the process conditions may be changed in accordance with a correlation among a value of the parameter, an optical property of the film, and the process conditions.

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